

1        1. A method of authentication in a telemetry system, said method comprising:

2                transmitting, by each of a plurality of transmitters, transmissions intermittently at time intervals and  
3                at a plurality of frequencies independently of any receiver of said transmissions, and

4                holding, by a receiver, simultaneously for each of said plurality of transmitters, data indicative of an  
5                expected frequency and an expected time of at least one future transmission, and

6                discriminating transmissions based at least in part on at least one of (a) an expected and an actual  
7                transmission frequency and (b) an expected and an actual transmission time.

1        2. The method of claim 1 wherein said receiver determines authenticity of transmissions based at  
2                least in part on said discriminating.

1        3. The method of claim 1 wherein each of said plurality of transmitters encrypts data for  
2                transmission, and said receiver decrypts received data.

1        4. The method of claim 3 wherein each of said plurality of transmitters changes encryption key for  
2                each of a plurality of transmissions.

1        5. The method of claim 4 wherein, for each transmitter, said encryption key is determined based on  
2                at least one of (a) frequency hopping and (b) time hopping of said each transmitter.

1        6. The method of claim 3 wherein said transmitter performs modification of at least a portion of  
2                said data for transmission with a modifier that is varied for each of a plurality of transmissions.

1        7. The method of claim 6 wherein, for each transmitter, said modifier is based on at least one of (a)  
2                frequency hopping and (b) time hopping of said each transmitter.

1        8. A receiver for authenticating telemetry transmissions, said receiver comprising:

2                logic for holding, simultaneously for each plurality of transmissions, data indicative of an expected  
3                time and an expected frequency of at least one future transmission, wherein each said plurality of  
4                transmissions is transmitted by a different one of a plurality of transmitters, wherein each of said plurality of  
5                transmitters is for transmitting transmissions intermittently at time intervals and at a plurality of frequencies  
6                independently of any equipment that is capable of receiving any of said transmissions from any of said  
7                plurality of transmitters, and

8                circuitry for receiving said transmissions;

9                wherein said receiver is for discriminating transmissions based at least in part on at least one of  
10                (a) an expected and an actual transmission frequency and (b) an expected and an actual transmission  
11                time.

1        9. The receiver of claim 8 wherein said receiver is for determining authenticity of transmissions  
2                based at least in part on said discriminating.

1       10. The receiver of claim 8 wherein said receiver is for decrypting received data encrypted for  
2 transmission by each of said plurality of transmitters.

1       11. The receiver of claim 10 wherein said receiver is for using, for each of said plurality of  
2 transmitters, a different decryption key for each of a plurality transmissions.

1       12. The receiver of claim 11 wherein said receiver is for determining, for each of said plurality of  
2 transmitters, a key for decryption based, at least in part, on said data indicative of an expected time and an  
3 expected frequency of at least one future transmission.

1       13. The receiver of claim 10 wherein said receiver is for verification, for each of said plurality of  
2 transmitters, based on at least a portion of a known content of received data modified by a modifier varied  
3 for each of said plurality of transmissions.

1       14. The receiver of claim 13 wherein said receiver is for determining, for each of said plurality of  
2 transmitters, said modifier based on said data indicative of an expected time and an expected frequency of at  
3 least one future transmission.

1       15. A frequency hopping telemetry transmitter comprising:  
2           circuit for transmitting transmissions intermittently, at time intervals and at various frequencies,  
3 independently of any receiver of said transmissions, and

4           logic for holding, in operation, upon each of said transmissions, data indicative of (a) a frequency  
5 and (b) time of at least one future transmission, wherein said frequency is predictable based on at least one  
6 past transmission frequency;

7           wherein said transmitter is for encryption of data for transmission using an encryption key that  
8 varies for each of a plurality of said transmissions.

1       16. The transmitter of claim 15 wherein said encryption key is determined based, at least in part, on  
2 said data indicative of at least one of (a) frequency and (b) time of at least one future transmission.

1       17. The transmitter of claim 15 wherein said encryption key is varied according to a sequence that  
2 is individually selected for said transmitter from a plurality of predetermined sequences.

1       18. A frequency hopping telemetry transmitter comprising:  
2           circuit for transmitting transmissions intermittently, at time intervals and at various frequencies,  
3 independently of any receiver of said transmissions, and  
4           logic for holding, in operation, upon each of said transmissions, data indicative of (a) a frequency  
5 and (b) time of at least one future transmission, wherein said frequency is predictable based on at least one  
6 past transmission frequency;

7       wherein said transmitter is for modification of at least a portion of known data for transmission  
8       using a modifier that varies for each of a plurality of said transmissions.

1       **19.** The transmitter of claim 18 wherein said modifier is determined based, at least in part, on said  
2       data indicative of at least one of (a) frequency and (b) time of at least one future transmission.

1       **20.** The transmitter of claim 18 wherein said modifier is varied according to a sequence that is  
2       individually selected for said transmitter from a plurality of predetermined sequences.